

point of view, the literature on this subject could be worked up along three distinct lines: *firstly*, from the phytochemical point of view; *secondly*, from the structural chemical point of view; and *thirdly*, from the point of view of alkaloidal assay. Whereas the individual undertaking such a task is bound to fail in the end, a larger organization, which disposes, not only over the means, but which has claims on the time and energy of individual specialists as well, should endeavor year in and year out to achieve the end.

Paper plans have their charms for those who develop them. Much more valuable, however, is the accomplishment of but a fragment of a great scheme. The AMERICAN PHARMACEUTICAL ASSOCIATION should strive to create such a bibliographic undertaking. Coöperation on the part of individuals will not be wanting provided the plan is rightly conceived and properly conducted.

* * * * *

The German copy of this manuscript which was published recently in the New York *Apotheker-Zeitung* (April Number) is supplemented with a table of bibliographic special features of fifty years of the *Bericht* von Schimmel & Co. Most of these Reports have been published in English and not a few in French. It did not seem worth while, however, to prepare corresponding bibliographic tables for these translations. Aside from the incompleteness of the foreign series, the differences would have consisted primarily in the page references. Librarians and others interested in these details are, therefore, referred to the account in the *Apotheker-Zeitung*, published in the same language in which the original *Bericht* appeared.

SOME INTERESTING FACTS ABOUT MERCUROCHROME.

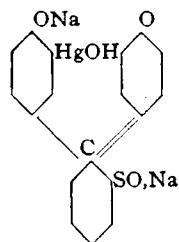
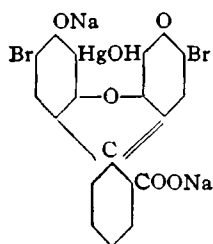
BY FITZGERALD DUNNING.

Many of the well-known therapeutic products dispensed by pharmacists in various parts of the country become, in time, so familiar that their chemical nature and history of development are forgotten.

Assuming this fact to be true in regard to Mercurochrome, it would seem desirable before describing practical methods of dispensing this product, to offer a résumé representing the history of its development.

The discovery and practical application of Mercurochrome is involved in the research work directed by Dr. Ira Remsen back in 1889, which resulted in the discovery of saccharin and phenolsulphonphthalein. Phenolsulphonphthalein, among other new compounds, prepared by Remsen and his co-workers, was submitted to Prof. J. J. Abel, Chief of the Pharmacological Department, Johns Hopkins Medical School. Dr. Abel tested these products on animals with the idea of ascertaining whether or not they would show properties which would indicate their value in medical practice. It is quite generally known that phenolsulphonphthalein proved to be of value in estimating kidney function, because of the uniformity and rapidity of its elimination through the kidneys. Dr. L. G. Rowntree, working with Dr. Abel in the Pharmacological Department, was in charge of the work which resulted in demonstrating the value of phenolsulphonphthalein as a kidney functional test, and Dr. J. G. Geraghty applied the results of Rown-

tree's work to clinical practice on humans. The phenolsulphonphthalein which was used for the investigation by Drs. Abel, Rowntree and Geraghty, was furnished by Dr. H. A. B. Dunning, who originated commercial processes for the preparation of this dye stuff. In a conversation with Dr. Dunning, Dr. Geraghty offered the suggestion that a valuable genito-urinary antiseptic might result, if one of the antiseptic metals, such as silver or mercury, might be introduced into the phenolsulphonphthalein molecule. This work was undertaken by Dr. Dunning and ultimately a satisfactory compound was prepared in which the mercury was contained within the molecule of phenolsulphonphthalein, but was not an addition product. This compound was investigated by Dr. E. G. Davis, working in the Brady Clinic, which is under the direction of Dr. Hugh H. Young. Dr. Davis reached the conclusion that mercury phenolsulphonphthalein gave indications of being a satisfactory genito-urinary antiseptic and his results lead to further research on related compounds, which were prepared by Dr. E. C. White, chemist at the Brady Clinic. Dr. White sought and was given coöperation by Dr. Dunning. The result of Dr. White's work was the discovery and preparation of Mercurochrome, in its insoluble form. Later the soluble form, for commercial distribution, was prepared by Dr. Dunning. The similarity between the mercury derivative of phenolsulphonphthalein and Mercurochrome can be seen by a glance at their structural formulæ. The former is represented and the latter



Mercurochrome, as may be seen from the foregoing paragraph, was originally intended for use as a genito-urinary antiseptic, but its extremely favorable properties led to its adoption as a general antiseptic. It is, therefore, the dispensing of Mercurochrome, as such, that is now to be considered. The most usual method of dispensing is in water solution, the strength of which is determined by the use. A 2 per cent solution has been found most satisfactory for general antiseptis. This can be readily made by dissolving a weighed amount of the dry sodium salt, an iridescent green scale, in a measured quantity of water. The solution is stable indefinitely and can be stocked accordingly. Small bottles containing glass rod applicators have been found very serviceable for dispensing the solution, but many other methods are also used. The solution can also be made from 4.6 grain tablets of Mercurochrome, which are available.

It is possible to prepare an alcohol-acetone-aqueous solution of Mercurochrome which has been found very effective as a skin disinfectant, for preoperative work. Combining high bactericidal properties with low toxicity, it is an excellent agent for this particular work. The stain affords a measure of the extent and thoroughness of preparation of the operative field. This solution can be made by dissolving 2 Gm. of Mercurochrome in 35 cc. of water and adding 55 cc. of 95% alcohol and 10 cc. of acetone.

A very convenient method of dispensing Mercurochrome for first-aid work has made its appearance in a first-aid kit now on the market. Ampuls containing $\frac{1}{2}$ cc. of a 2 per cent solution are fitted at the sealed end with a piece of stiff gauze to form a brush. By breaking the neck of the ampul, the solution can be painted on the wounded surface immediately. Cotton swabs twisted on the end of wooden sticks and saturated with Mercurochrome solution have been found to facilitate the immediate application of the germicide to the skin surface. The swab is moistened in water for several seconds and then applied. Gauze saturated with Mercurochrome has made its appearance. This may be moistened and used, or, if the wound is bleeding, may be applied dry. It has been found to be very effective in sterilizing bleeding wounds.

Ointments and suppositories of Mercurochrome may be readily prepared. For the ointment, the necessary amount of the compound is weighed and dissolved in enough water to make a 50 per cent solution. This thick syrupy solution is incorporated in the usual manner with a mixture of equal parts of lanolin and vaseline. The suppositories may be made by using the same kind of solution as for making the ointment. This should be added to melted cocoa butter having a creamy consistency, almost at the congealing point. After adding this solution, the mixture should be vigorously stirred and then poured into molds to cool.

In the dispensing of any pharmaceutical product, the possibility of using it in conjunction with other pharmaceuticals to produce a mixture more efficacious than any one of the individual compounds almost always confronts one. It might be well, therefore, to mention the kind of compounds with which Mercurochrome is incompatible. Inorganic acids, and most organic acids (boric acid is a notable exception), salts which give an acid hydrolysis in solution, most alkaloids higher alcohols, and reducing substances are all incompatible with Mercurochrome. The best method of testing the compatibility of any mixture is to add each of the components to a solution of Mercurochrome. If the insoluble form or metallic mercury is precipitated, the mixture will not be compatible. These statements are not meant to be conclusive, but merely to afford a simple criterion for the most usual questions arising from the desire for the use of mixtures.

The foregoing paper has been prepared, not as an exhaustive treatise on Mercurochrome, but with the sole idea of familiarizing pharmacists with its origin, nature, and some of its uses. It is to be hoped, therefore, that this paper will be looked on merely as a rough outline, generalizing some of the available data about Mercurochrome.

MEDICAL EDUCATION OF THE PUBLIC IN ENGLAND.

Under the supervision of the British Medical Association the offices will be opened in many of the large centers and information can be obtained relative to matters of medical education. Medical women will be in charge to answer inquiries relative to the subject. In the country and smaller places the information will be given by medical missionaries in traveling motor vans. The information will be

largely relative to diseases which may be prevented and of those that are most prevalent.

Popular lectures on pharmaceutical subjects are given in various cities of the United States and the idea may be carried a little further so as to give the public information relative to the dangers that obtain in patronizing stores where the sole object is the making of money and little regard is had for the safety of the public. Quite a number of the problems which concern the pharmacist are also of interest to the laity.